**In the Claims**

A complete claim set is listed below. Please add the following new claims 39-44 as indicated below.

1. (Previously Presented) A semiconductor structure comprising:
a silicon germanium component;
an intermediate layer formed on the silicon germanium component; and
a gallium nitride material layer formed on the intermediate layer.

2. (Original) The semiconductor structure of claim 1, wherein the silicon germanium component is a layer.

3. (Original) The semiconductor structure of claim 2, wherein the silicon germanium layer is formed on a substrate.

4. (Original) The semiconductor structure of claim 3, wherein the silicon germanium layer is formed on a silicon substrate.

5. (Original) The semiconductor structure of claim 2, wherein the silicon germanium layer is formed on a silicon germanium substrate.

6. (Previously Presented) The semiconductor structure of claim 1, wherein the silicon germanium component is a substrate and the gallium nitride material layer is formed on the silicon germanium substrate.

7-11. (Canceled)

12. (Previously Presented) The semiconductor structure of claim 1, wherein the intermediate layer is compositionally graded.

13. (Original) The semiconductor structure of claim 2, wherein the composition of the silicon germanium layer is graded.

14. (Previously Presented) The semiconductor structure of claim 13, wherein the germanium concentration of the silicon germanium layer is increased in a direction away from a substrate.

15. (Original) The semiconductor structure of claim 1, wherein the silicon germanium component has a monocrystalline structure.

16. (Original) The semiconductor structure of claim 1, wherein the silicon germanium component has a thermal expansion coefficient within +/- 25% of the thermal expansion coefficient of the gallium nitride material layer.

17. (Original) The semiconductor structure of claim 1, wherein the silicon germanium component comprises a $Si_xGe_{(1-x)}$ alloy and x is greater than or equal to 0.7.

18. (Original) The semiconductor structure of claim 17, wherein the silicon germanium component comprises a $Si_xGe_{(1-x)}$ alloy and x is greater than or equal to 0.8.

19. (Previously Presented) The semiconductor structure of claim 1, wherein the gallium nitride material layer comprises an $Al_xIn_yGa_{(1-x-y)}N$ alloy.

20. (Original) The semiconductor structure of claim 19, wherein the sum of (x + y) is less than 0.2.

21. (Previously Presented) The semiconductor structure of claim 1, wherein the gallium nitride material layer comprises GaN.

22. (Previously Presented) The semiconductor structure of claim 1, wherein the gallium nitride material layer has a crack level of less than 0.005 $\mu m/\mu m^2$.

23. (Original) The semiconductor structure of claim 1, wherein the gallium nitride material layer forms at least a portion of a device region.

24. (Original) The semiconductor structure of claim 1, wherein the structure forms an FET.

25. (Original) The semiconductor structure of claim 1, wherein the structure forms an LED.

26. (Original) The semiconductor structure of claim 1, wherein the structure forms a laser diode.

27. (Previously Presented) The semiconductor structure of claim 1, wherein the structure forms a first semiconductor device that includes the silicon germanium component and a second semiconductor device that includes the gallium nitride material layer.

28. (Original) The semiconductor structure of claim 27, wherein the first semiconductor device is integrated with the second semiconductor device.

29. (Original) A semiconductor structure comprising:

a silicon germanium component; and

a gallium nitride material layer formed on the silicon germanium component, the gallium nitride material layer having a crack level of less than 0.005 $\mu m/\mu m^2$.

30. (Original) A semiconductor structure comprising:

a silicon substrate;

a silicon germanium layer formed on the silicon substrate; and

a gallium nitride material layer formed on the silicon germanium layer.

31. (Original) A semiconductor structure comprising:

a substrate;

a silicon germanium component formed on the substrate; and

a gallium nitride material component formed on the substrate,

wherein the structure forms a first semiconductor device that includes the silicon germanium component and a second semiconductor device that includes the gallium nitride material component, the first semiconductor device being integrated with the second semiconductor device.

32. (Original) The semiconductor structure of claim 31, wherein the silicon germanium component and the gallium nitride component are formed on different portions of the substrate.

33-38. (Canceled)

39. (New) The semiconductor structure of claim 1, wherein the intermediate layer is formed directly on the silicon germanium component.

40. (New) The semiconductor structure of claim 1, wherein the gallium nitride material layer is formed directly on the intermediate layer.

41. (New) The semiconductor structure of claim 1, wherein the intermediate layer is formed of aluminum nitride, an aluminum nitride alloy, or a gallium nitride alloy.

42. (New) The semiconductor structure of claim 41, wherein the intermediate layer is formed of aluminum nitride.

43. (New) The semiconductor structure of claim 30 further comprising an intermediate layer formed between the silicon germanium layer and the gallium nitride material layer.

44. (New) The semiconductor structure of claim 43, wherein the silicon germanium component comprises a $Si_xGe_{1-x}$ alloy and X is greater than or equal to 0.7.